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## Psychological distress among re-education through labour camp detainees in Guangxi Autonomous Region, China

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### Abstract

**Background:** There is currently no information about the prevalence of, and factors contributing to psychological distress experienced by re-education through labour camp detainees in China.

**Methods:** A cross-sectional face-to-face survey was conducted in three labour camps in Guangxi, China. The questionnaire covered socio-demographic characteristics; sexually transmissible infections (STIs); drug use; psychological distress (K-10); and health service usage and access inside the labour camps. K-10 scores were categorised as  $\leq 30$  (low to moderate distress) and  $>30$  or more (highly distressed). Univariate and multivariate logistic regression models identified factors independently associated with high K-10 scores for men and women separately.

**Results:** In total, 755 detainees, 576 (76%) men and 179 (24%) women, participated in the health survey. The study found 11.6% men versus 11.2% women detainees experienced high psychological distress, but no significant gender differences were observed ( $p>0.05$ ). Multivariate logistic regression showed that multiple physical health problems were significantly associated with high psychological distress among men.

**Conclusion:** Drug treatment and forensic mental health services need to be established in detention centres in China to treat more than 10% of detainees with drug use and mental health disorders.

### Keywords

prisoners, China, psychological distress, K-10, labour camps

### Introduction

Mental and behavioural disorders account for an estimated 7.4% of the global burden of disease (Murray et al., 2012). In China, projected estimates indicate that 173 million or 12% of the population suffer from a diagnosable mental health disorder, of these 91% have never received any professional help for their condition (Phillips et al., 2009). Many with mental and behavioural disorders are imprisoned and are often neglected from surveys of the general population such as the World Health Organization (WHO) Global Burden of Disease Study (Murray et al., 2012) and the World Mental Health Surveys (Kessler et al., 2015). Around 10.75 million people are held in penal institutions and detention centres throughout the world with more than half held in the United States of America (2.29 million), Russia (810,000) and China (2.3 million) (Walmsley, 2011). Prisoners are noted for having high rates of mental and physical illness and substance abuse (Butler et al., 2011; Fazel & Baillargeon, 2011; Fazel & Seewald, 2012; Ibrahim et al., 2015; Mir et al., 2015; Mundt et al., 2013; Mundt et al., 2015; Mundt et al., 2015; Murrie et al., 2009; Naidoo & Mkize, 2012).

We conducted a survey of the physical and mental health status of detainees in re-education through labour camps (hereafter referred to as labour camps in China) in March 2011 (Yap et al., 2013, 2015; Zhang et al., 2015). Labour camps (*laojiaosuo*) contain a mix of drug users and non-drug users, imprisoned for minor offenses such as petty theft, gambling, sex work, illicit drug use, drug dealing and religious or political dissent. In 2008, 160 000 individuals were reportedly held in 350 labour camps throughout China (China Daily, 2013; Fu, 2005; Zhang et al., 2011). During the study, labour camps underwent major reform. The reform eliminated labour camps, as well as, compulsory drug detoxification centres, both were incorporated into a single entity now known as "isolated compulsory drug rehabilitation" or compulsory isolation centres (NPC, 2007). It should be noted that during the study, "re-education through labour camps" were also officially known as "isolated compulsory

drug rehabilitation centres” and both these names were used interchangeably by Chinese officials in the Guangxi Autonomous Region during the transition period, although the latter name was used solely after 2013.

Currently, there is no information about the prevalence of, and factors associated with psychological distress among detainees in China. This is the first study to examine adult detainees’ mental health in labour camps in China with a focus on psychological distress.

## Methods

The study was conducted in March 2011. Following discussions with the Provincial Center for Disease Control and the Re-education Through Labour Administration Bureau which is responsible for the overall administration of the labour camps, three out of seven separate labour camps (one female and two male) in the region agreed to participate in the study.

In each labour camp, detainees were housed in shared rooms and dormitories in multistoried accommodation blocks. These accommodation blocks were randomly selected and men and women aged 18 years and over and living in the selected blocks were invited to participate in the study. However, in each labour camp, most HIV-positive detainees were accommodated in a separate facility so that antiretroviral therapy (ART) could be delivered more efficiently by medical staff and to protect HIV-negative detainees. We deliberately selected the accommodation blocks housing HIV-positive detainees (3 facilities housing 47 men and 25 women); in case, they were missed in the random selection process. The majority of HIV-positive detainees in the labour camps were included in our survey. The study design has been described in detail elsewhere (Yap et al., 2015, 2013).

Using a questionnaire, face-to-face interviews were conducted by local medical students with detainees in a range of settings throughout the labour camp including sports grounds, factories inside the camps, and just outside the gates of the labour camps. No labour camp staff were present during the interviews. A small monetary incentive was provided to participants.

The questionnaire was pilot tested among former and current labour camp detainees prior to use. Former detainees identified that they had previously been incarcerated in a labour camp to researchers. The questionnaire covered: sociodemographic characteristics, sexually transmissible infections (STI) including HIV, HIV-testing history, sexual and drug use behaviours, distress measured in the Kessler Psychological Distress Scale (K-10 here onwards), and respondent’s health service usage and their views on health care access inside the labour camp (Yap et al., 2013).

As part of this survey, the K-10 scale was administered. The K-10 is a simple measure of non-specific psychological distress in the anxiety-depression continuum. Previous research has proven its reliability and validity in Chinese populations (Chan et al., 2014; Huang et al., 2009; Lee et al., 2012). The K-10 scale is a 10-item screening questionnaire intended to yield a global measure of psychosocial distresses based on questions about the level of anxiety and depressive symptoms in the most recent 4-week period (Andrews & Slade, 2001). The K-10 scale has been shown to be accurate and sensitive in predicting serious mental illness (Kessler et al., 2003).

Participants were required to provide written consent before they could participate in the study. The consent form included detailed information about the selection of subjects, the purpose of the study, any risks that may be involved in the study participation, that any information collected by the study would remain confidential, that their decision to participate or not would not affect their future treatment in the labour camp, and that they were free to leave the study at any time during the survey.

## Ethics

Ethics approval was obtained from the Human Research Ethics Committees at the National Center for AIDS/STD Control and Prevention (Chinese Center for Disease Control and Prevention, China CDC), and the UNSW Australia (UNSW HREC9125). Permission was also granted to conduct the study from the Provincial Center for Disease Control and the Re-education Through Labour Administration (Yap et al., 2013).

## Analysis

K-10 scores were calculated and dichotomised as  $\leq 30$  (low to moderate distress) and  $> 30$  or more (highly distressed) which have been used elsewhere (Andrews & Slade, 2001; Stolk et al., 2014). For analysis, low and moderate distress scores ( $K-10 \leq 30$ ) were combined for better discrimination using the high score cut-off ( $K-10 > 30$ ). Data were analysed separately for men and women using the statistical software SAS 9.2 (SAS Institute, 2011). We calculated descriptive statistics, frequencies and percentages for the categorical variables. Multivariate logistic regression models were used to identify factors independently associated with high K-10 scores for men and women separately. First, univariate regression analysis was conducted for each predictor of interest and presented statistically significant predictors in Table 1. Following this, a multivariate regression analysis was conducted on the significant predictors and the K-10 score. Indicators with collinearity were then further filtered out from the regression model and hence, we obtained the most significant risk factors for severe psychological stress. We ran collinearity diagnostics for all variables  $p < 0.05$  and kept the main variables in the model. Backward stepwise variable selection in logistic regression was used. We compared the self-reported health conditions, symptoms of physical illness and health care use and access in labour camps between the “highly distressed” group and the “low/moderate distressed” group. A  $p$  value of less than 0.05 was considered significant.

## Results

Out of a total of 3290 detainees in three labour camps during the survey period, in total 755 (23%) of detainees were selected to participate in the survey: 576 (76%) men and 179 (24%) women, representing 21% and 33% of the total male and female population respectively in the three labour camps

Table 1. Severe psychological distress (K-10 score &gt;30) and associated factors among labour camp detainees, by sex.

Description	Men <sup>c</sup>			Women <sup>c</sup>		
	Total (n)	High distress >30	Univariate OR (95% CI)	Multivariate OR (95% CI)	Total (n)	High distress >30
<b>Total Surveyed</b>		<b>576</b>				<b>179</b>
<b>Demographic characteristics</b>						
Age group						
<25	88	2.30%			15	6.70%
25–34	246	14.20%	<i>ref.</i>	<i>ref.</i>	82	14.60%
35–44	188	10.60%	<b>7.13 (1.68–30.31)**</b>	<b>4.49 (1.02–19.65)*</b>	58	3.40%
45+	54	18.50%	<b>5.12 (1.17–22.41)**</b>	3.57 (0.78–16.24)	24	20.80%
Marital status						
Single (never married)	282	11.00%			68	7.40%
Married/cohabiting	236	12.30%	<i>ref.</i>	<i>ref.</i>	79	11.40%
Divorced/separated/Widow	57	12.30%	1.14 (0.64–2.03)	–	32	18.80%
Missing/unknown	1	0.00%	1.03 (0.95–1.11)	–		
Education						
Junior high and below	486	13.00%			166	12.00%
Senior high and above	90	4.40%	<b>0.31 (0.11–0.88)*</b>	–	13	0.00%
Employment before labour camps						
No	279	12.50%	<i>ref.</i>	<i>ref.</i>	105	11.40%
Yes	297	10.80%	0.96 (0.71–1.98)	–	74	10.80%
General health						
In general, would you say your health is?						
Excellent	25	8.00%			8	0.00%
Very good	85	3.53%	<i>ref.</i>	<i>ref.</i>	35	5.71%
Good	108	1.85%	0.42 (0.07–2.67)	0.7 (0.1–4.67)	45	4.44%
Fair	260	10.38%	0.22 (0.03–1.62)	0.33 (0.04–2.55)	76	15.79%
Poor	97	34.02%	1.33 (0.3–5.97)	1.67 (0.36–7.89)	15	26.67%
			<b>5.93 (1.32–26.7)<sup>a</sup></b>	<b>5.2 (1.09–24.92)<sup>a</sup></b>		
Sexual behaviour outside of camp						
Sexual orientation						
Heterosexual	569	11.40%	<i>ref.</i>	–	176	10.20%
Homosexual	0	0%	–	–	2	50%
Bisexual	6	33.30%	3.88 (0.7–21.58)	–	1	100.00%
Last sexual partner						
Regular	450	10.90%			158	10.90%
Casual	66	12.10%	<i>ref.</i>	–	9	12.10%
Commercial	38	26.30%	1.77 (0.7–4.51)	–	12	26.30%
Missing/No response	5	0.00%	2.32 (0.86–5.52)	–		
Condom use with last sexual partner						
No	447	12.80%	<i>ref.</i>	–	126	11.10%
Yes	108	9.30%	0.81 (0.56–2.63)	–	53	11.30%
Someone paid you for sex in the last 12 months						
No	553	12.20%			133	9.80%
Yes	5	0.00%	<i>ref.</i>	–	46	15.20%
Missing/No response	1	0.00%	–	–		

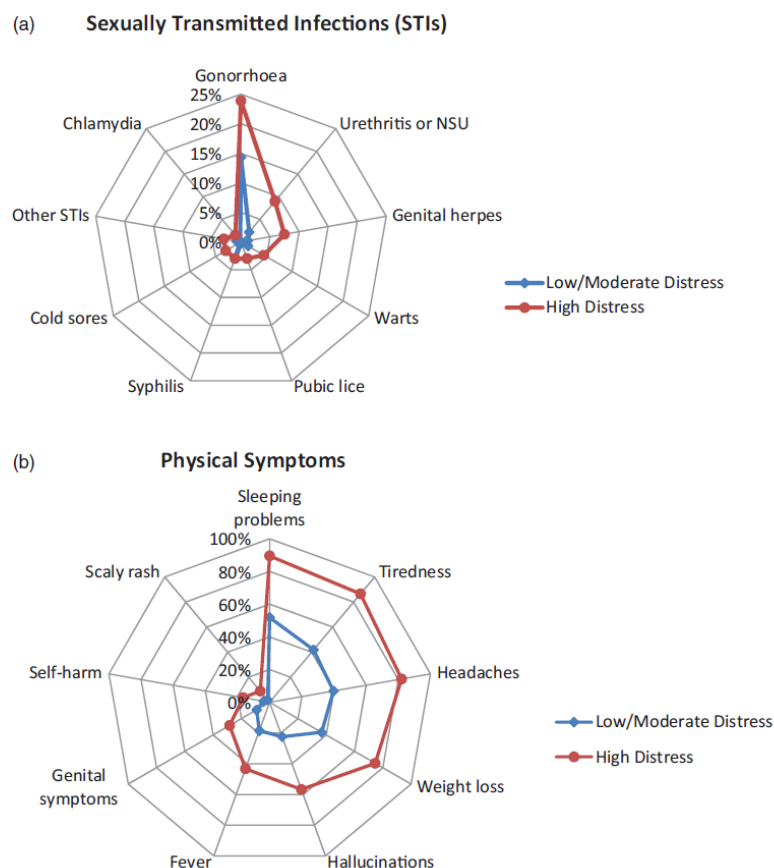
(continued)

Table 1. Continued

Description	Men <sup>c</sup>				Women <sup>c</sup>			
	Total (n)	High distress >30	Univariate OR (95% CI)	Multivariate OR (95% CI)	Total (n)	High distress >30	Univariate OR (95% CI)	Multivariate OR (95% CI)
<i>You paid someone for sex in the last 12 months</i>								
No	329	10.00%	<i>ref.</i>		178	11.14%		
Yes	229	14.80%	1.57 (0.94–2.62)	–	1	0.00%	–	
Missing/No response	1	0.00%	0					
<i>Condom use with a sex worker last time sex</i>								
No	78	15.40%	<i>ref.</i>		0	0.00%		
Yes	99	6.10%	<b>0.35 (0.13–0.99)*</b>		1	0.00%	–	
<i>Drug use behaviours outside camp</i>								
Ever used drugs in the community								
No	142	1.40%	<i>ref.</i>		30	23.3%	<i>ref.</i>	
Yes	433	15.00%	<b>6.57 (2.48–14.37)<sup>b</sup></b>		149	8.7%	<b>0.31 (0.11–0.87)<sup>a</sup></b>	
Ever injected in the community								
No	90	7.70%	<i>ref.</i>		129	7.80%	<i>ref.</i>	
Yes	340	17.06%	<b>3.66 (1.1–12.15)<sup>a</sup></b>		19	15.80%	2.23 (0.55–8.97)	
Re-used someone else's needle and syringes last time you injected								
No	291	15.80%	<i>ref.</i>		113	7.10%	<i>ref.</i>	
Yes	47	25.50%	2.14 (0.94–4.87)		15	13.30%	2.23 (0.42–11.73)	
Ever been on a methadone program								
No	429	9.60%	<i>ref.</i>		114	11.40%	<i>ref.</i>	
Yes	141	17.70%	<b>2.03 (1.19–3.46)<sup>b</sup></b>		65	10.80%	1.07 (0.4–2.82)	
<i>History of incarceration</i>								
No, of times in a compulsory detoxification treatment centre (CDTC)								
Never	263	6.10%	<i>ref.</i>		60	11.60%	<i>ref.</i>	
Once	110	13.60%	2.92 (0.96–3.16)		47	14.90%	1.32 (0.83–2.85)	
≥2 times	203	17.70%	3.17 (0.87–4.12)		72	8.30%	0.82 (0.56–3.68)	
No, of times in a labour camp								
First time	418	10.00%	<i>ref.</i>		129	11.60%	<i>ref.</i>	
2 times	158	15.80%	<b>1.49 (1.13–1.96)**</b>		50	10.00%	0.84 (0.29–2.46)	
Current offence								
Non-drug related	151	2%	<i>ref.</i>		32	22%	<i>ref.</i>	
Drug related	424	15.10%	<b>8.75 (2.7–28.28)**</b>	<b>5.42 (1.6–18.41)**</b>	147	8.80%	<b>0.3 (0.11–0.85)*</b>	
<i>Self-reported ever infected status</i>								
HIV infection								
No	528	9.80%	<i>ref.</i>		153	10.50%	<i>ref.</i>	
Yes	47	32%	<b>4.16 (2.12–8.16)**</b>	<b>2.48 (1.14–5.42)*</b>	25	12%	1.1 (0.3–4.06)	
HAV infection								
No	566	11.30%	<i>ref.</i>		178	10.70%		
Yes	9	33.30%	3.93 (0.96–16.1)		0	0.00%	–	



Figure 1. Male detainees (a) Prevalence of self-reported current STI status among low/moderately and highly distressed male detainees. (b) Prevalence of self-reported physical symptoms experienced by low/moderately and highly distressed male detainees  
Genital symptoms – “Small blisters that turn into scabs on the genital area”, “Chancres sores (painless red sores) on the genital area”, “Soft, flesh-coloured warts around the genital area” and “Pain when urinating”.



(Yap et al., 2013). An additional 29 detainees were excluded from the survey because they were under 18 years of age (Yap et al., 2013). The survey response rate was 100%.

The majority of detainees surveyed were aged between 21 and 40 years (78%), of Han ethnicity (64%), had completed at least junior middle school (46%), and around half had never been married (46%). For most participants (73%), it was their first time in a labour camp, with most having spent a total of less than two years incarcerated (79%), mainly for drug-related offences (76%) (Table 1).

There was no statistically significant difference in the proportion of men and women detainees reporting high psychological distress (11.6% vs. 11.2%,  $p=0.867$ ). Multivariate logistic regression, however, showed multiple variables significantly associated with high psychological distress among men, but not among women. Among men, high psychological distress was associated with age 25 years and over, being incarcerated for a drug-related offence, ever had a diagnosis of HIV or a STI, self-reported currently being infected with a STI, reported that their health was generally “poor”, and were “unsure” whether or not they were satisfied with health care services in the labour camps. For women detainees, the analysis showed that none of the risk factors under investigation were statistically significant in association with high psychological distress in the labour camps (Table 1).

A detailed description of STIs and other physical symptoms experienced by highly distressed men and women detainees are shown in Figures 1 and 2. Men who were highly distressed were more likely to report having ever been infected with gonorrhoea than men with lower levels of psychological distress (Figure 1a). Among women with high levels of distress, gonorrhoea and bacterial vaginosis were more frequently reported (Figure 2a). Both men and women who were highly distressed reported experiencing symptoms including, lack of sleep, headaches, tiredness and weight loss (Figures 1b and 2b). Men, in particular, reported hallucinations in the last month, while highly distressed women reported menstrual irregularities (Figures 1b and 2b).

## Discussion

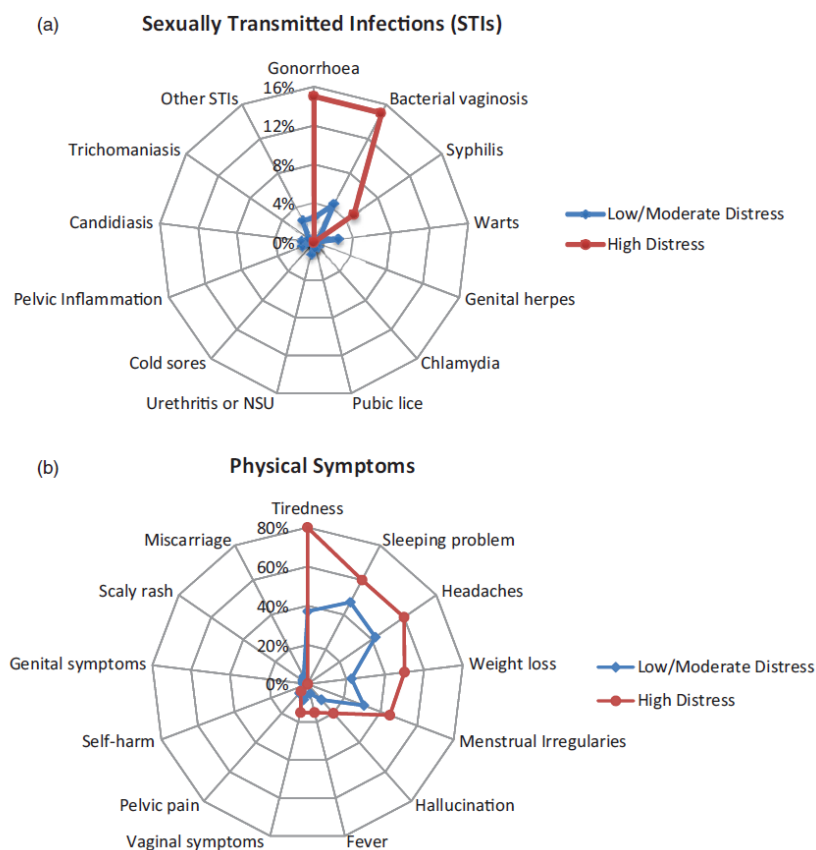
We found a high prevalence of high psychological distress (11.2% vs. 11.6%) in female and male labour camps detainees. Several factors were significantly associated with high psychological distress among male detainees, while no factors were found to be significantly associated with female detainees experiencing high psychological distress.

In contrast, prisoner mental health studies performed elsewhere found women experienced a higher prevalence of psychological distress than men. In one Australian study, the prevalence of “high” psychological distress ( $K-10 > 30$ ) was



Figure 2. Women detainees (a) Prevalence of self-reported current STI status among low/moderately and highly distressed female detainees. (b) Prevalence of self-reported physical symptoms experienced by low/moderately and highly distressed female detainees.

Vaginal symptoms – Itching around the vagina and/or discharge from the vagina  
Genital symptoms – “Small blisters that turn into scabs on the genital area”, “Chancre sores (painless red sores) on the genital area”, “Soft, flesh-coloured warts around the genital area” and “Pain when urinating”.



higher among female prisoners than in males (26% vs.12%), with a higher proportion of women having a history of a mental health disorder (41% vs. 30%) (AIHW, 2012).

A comparison of labour camp men with women detainees and the general population in rural areas of China found moderate to high levels of psychological distress more prevalent among women than men (38% vs. 27%) (Feng et al., 2013). However, a study among adolescents in the general population in China, reported no significant gender differences in the prevalence of psychological distress (Huang et al., 2009).

The findings from this study corroborate the results from other studies where drugs users had typically higher levels of psychological distress. Specific, multiple, and polydrug use were more likely associated with psychological distress among drug users (Kelly et al., 2015; Booth et al., 2010).

In this study, medical comorbidities, HIV and current STI, were significantly associated with high K-10 scores among male detainees in labour camps. The relationship between medical comorbidity and its association with psychological distress has been reported elsewhere (Byles et al., 2014; Li et al., 2009; Piane & Smith, 2014; Strine et al., 2006).

Other factors, such as poorer health care in the labour camps, may be a contributing factor among male detainees experiencing high psychological distress. Although male detainees were more likely to report that they were “unsure” when compared to women rather than “dissatisfied” with their access to and the quality of health care services in the labour camp, this may be both cultural and research artefact. There was a tendency among detainees not to want to report anything negative about the system, particularly men, even though researchers assured detainees that their answers were confidential. Referred to as the Confucian “doctrine of the mean” or the “Golden Mean” in Chinese culture, detainees were “...taking neutralization” as their belief...” and “...[avoiding] extreme thoughts and behaviors...” (p.462) (Chen & Ling, 2010).

A limitation of this study was that we deliberately sampled facilities housing most HIV-positive detainees in the labour camps in our survey, potentially biasing our sample. Another limitation was that respondents could have provided socially and politically desirable responses, hence the 100% response rate, despite assurances that they would not face any negative consequences if they did not wish to participate in the study or answer particular questions.

## Conclusions

Around one-tenth of men and women detainees experienced high psychological distress in labour camps in China. Further studies, particularly qualitative studies, are needed to

determine the prevalence of specific mental health issues and to determine reasons for or causes of high psychological distress so that effective interventions and treatments could be devised. Drug treatment and forensic mental health services need to be established in detention centres in China to treat more than 10% of the detainees with drug use and mental health disorders.

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### Declaration of interest

Three of the coauthors are connected with the National or Provincial Center for Disease Control (CDC), China Ministry of Health. This study was funded by Australian Development Research Award (ADRA) (#49528).

### Disclaimer

The opinions expressed herein reflect the collective views of the coauthors and do not necessarily represent the official position of the National Center for AIDS/STD Control and Prevention, Chinese Center for Diseases Control and Prevention, or the funding agency, AusAID.

### Patient consent

Obtained.

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